



## Multiple Mitigation Measures Ease Town's Trouble

### Full Mitigation Best Practice Story

#### *Waldo County, Maine*

**Waldo County, ME** - Lake St. George in the Town of Liberty is reported by local officials to be one of the cleanest lakes in Maine. If you were in the area on a sunny summer day you would find as many as 150 people swimming, fishing, and picnicking on its banks. The lake is big area attraction for locals, tourists, and vacationers from far away.



However, when the weather was severe and the crowds were gone, a local road on the edge of the lake presented problems. Stickney Hill Road, a steep incline, which runs very close to the shore along the southern end of Lake St. George, created extreme hazards for travelers and threatened the purity of the lake itself. In all seasons, winter ice storms, freezing and thawing, spring runoff, summer repetitive flooding, and fall heavy rain events had washed out shoulders, eroded the roadway, blocked culverts causing embankment erosion, and deposited extensive silt, debris, and sediment in the lake.

As a connector between two major routes, the road was closed to traffic two to four times a year for safety reasons. This created a number of problems. Emergency services to more than 150 people were cut off. Local commuters, which are 50 percent of the town's residents, had to make a nine-mile detour to get to work. Repairs were getting more costly with each event. A Maine Department of Transportation (DOT) traffic count reports more than 500 vehicles a day used the road. The number doubles in the summer when many visitors are coming to enjoy the lake.

The runoff also presented an environmental hazard. The extensive silt, debris, and sediment deposits were a threat to the purity of the lake and to local residents who drew drinking water for their homes and camps from the lake. Recreational users as well as the area fish and wildlife population were also threatened.

The solution to the problem involved multiple mitigation measures. First, 900 feet of the old road surface was removed. The roadbed was then lined with geotextiles, a permeable fabric engineered to control drainage and to keep the water table from rising above the road. When used in association with stone and soil, geotextiles have the ability to separate, filter, reinforce, protect, or drain water from an area. The ditches on either side of the road were also lined with geotextiles and stone.

Six driveway culverts along the road were also increased in sized. Under the road, three cross culverts with plunge pools were installed to collect runoff and sediment. After all 900 feet of road was elevated 14 inches and repaved, the shoulders on both sides of the road were then loamed and seeded. Rip-rap was also placed along the shoreline of the lake.

The Town of Liberty officials reported no closures of the road this past winter (2008).

#### Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region I**

State: **Maine**

County: **Waldo County**

City/Community: **Liberty**

### Key Activity/Project Information

Sector: **Public**  
Hazard Type: **Flooding**  
Activity/Project Type: **Flood Control**  
Activity/Project Start Date: **07/2008**  
Activity/Project End Date: **12/2008**  
Funding Source: **Hazard Mitigation Grant Program (HMGP)**  
Funding Recipient: **Local Government**  
Funding Recipient Name: **Town of Liberty**  
Application/Project Number: **1693-4R**

### Activity/Project Economic Analysis

Cost: **\$85,253.00 (Actual)**

### Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Yes**  
Federal Disaster #: **1693 , 04/25/2007**  
Federal Disaster Year: **2007**  
Value Tested By Disaster? **Yes**  
Tested By Federal Disaster #: **No Federal Disaster specified**  
Year First Tested: **2008**  
Repetitive Loss Property? **Unknown**

### Reference URLs

No URLs were submitted

### Main Points

No Main Points were entered.



Geotextile



Stickney Hill Road